

blood was found in the brain in the neighbourhood of the seat of the operation. As regarded the opening made by the trephine it was not replaced by the growth of any new bone, but it was filled by a tough membrane composed of the integument on one side and the dura mater on the other.

XIX. and XX. These two papers are by ALFRED S. TAYLOR, on *Poisoning by Tartarized Antimony*, with medico-legal observations on the cases of Ann Palmer and others, and on the *Detection of Absorbed Strychnia and other Poisons*.

These papers occupy 133 pages, and possess great interest for the medical jurist, to whose attention we recommend them.

W. F. A.

ART. XXII.—*Researches on Epilepsy: its Artificial Production in Animals, and its Etiology, Nature, and Treatment in Man.* By E. BROWN-SEQUARD, M. D., Professor of Physiology at the Cooper Institute, N. Y., etc. etc. Republished from the Boston Medical and Surgical Journal, from Nov., 1856, to Nov., 1857. Boston, 1857. 8vo. pp. 82.

In a course of vivisections, Dr. Brown-Séquard found that certain injuries of the spinal cord, in animals, produced convulsions of an epileptic character. These injuries were—1st. A transverse section of a lateral half of the cord; 2d. A transverse section of the two posterior columns of the cord, of its posterior cornua of gray matter, and of a portion of the lateral columns; 3d. A transverse section of either the posterior columns, or the lateral, or the anterior alone—when the incision has been deep enough to implicate the gray matter; 4th. A transverse section of the entire cord; and 5th. A simple puncture.

Convulsions were more especially the consequence of the first, second, and fourth of these injuries, especially when inflicted on that part of the cord which extends from the seventh or eighth dorsal to the third lumbar vertebra.

In other experiments, few in number, the section of the central gray matter, with but slight injury to the white matter of the cord, was followed by epileptiform convulsions.

The convulsive paroxysms usually occur during the third or fourth week after the injury. In some cases they began during the second week, or a day or two before. At first the paroxysm consists only in a spasm of the muscles of the face and neck, on one or both sides, according to the extent of the transverse incision, and is of short duration. After a few days the paroxysm becomes more complete, and all the parts of the body, not paralyzed, are convulsed.

The parts convulsed vary according to the seat of the spinal injury. When this occurs near the last dorsal vertebra, or the first lumbar, and consists of a section of a lateral half of the cord, the convulsions affect all parts of the body, excepting the posterior limbs on the side of the injury. When the section implicates the two posterior columns, a part of the lateral columns, and the gray matter, the convulsions are universal, but most violent in the anterior parts of the body. When the incision of the cord is on a level with the last dorsal vertebra, and implicates the two anterior or the two lateral columns, the convulsions are ordinarily limited to the anterior portion of the body, but not always; the posterior limbs are at the same time affected with very strong tetanic spasms. After a transverse section of the central gray matter, or of the whole spinal cord in the dorsal region, the convulsions are confined to either the anterior or posterior parts of the body.

The convulsions may occur spontaneously, or after certain excitations, as a forcible suspension of respiration for a couple of minutes, or pinching the skin of certain parts of the face and neck. If there is a transverse section of only one lateral half of the spinal cord, irritation of the side of the face and neck on the same side as the injury gives rise to convulsions; and if both sides of the cord have been injured, irritations of both sides of the face and neck are

followed by convulsions. The parts which, when irritated, give rise to convulsions are confined to certain parts of the face and neck. In the face, irritation of the parts which are animated by the ophthalmic nerve is not followed by convulsions; and only a few of the filaments of the two other branches of the trigeminal nerve produce convulsive paroxysms when irritated; these are, more especially, the sub-orbital and auriculo-temporalis—the same property is possessed also, perhaps, by a few filaments of the second and third cervical nerves. The nostrils, the lips, the ears, the skin of the forehead and of the head may be irritated without the production of convulsions, as may also the parts in the neighbourhood of the median line of the neck, either in front or behind.

Dr. Brown-Séquard ascertained that it was not in consequence of the pain produced by the irritation, in these experiments, that the convulsions were brought on. Thus, in cases where the incision of the spinal cord implicated only one of its lateral halves, irritation of the opposite side of the face or neck does not produce convulsions. In these cases, also, the posterior limb on the same side with the injury is in a state of hyperæsthesia, and the most violent irritation of that limb does not produce convulsions; again, severe irritation is not required to bring on the convulsive paroxysm, it is sufficient sometimes to merely touch or even blow upon the face or neck to excite convulsions; while, it can be shown, that the parts about the face and neck have not a greater amount of sensibility than the other parts of the body.

"The production of fits by the irritation of certain parts of the neck and face seems to belong to reflex actions. It is well known that an irritation of the skin and of the mucous membranes may easily produce certain reflex movements, which very rarely take place after an irritation of the trunks of the sensitive nerves. For instance, coughing is almost a constant result of an irritation of the mucous membrane of the larynx and of the bronchial tubes, while it is very rarely produced by an irritation of the trunk of the par vagum. Something similar exists for the production of the convulsive fits when the face is irritated in animals upon which the spinal cord has been injured. If we lay bare the nerves of the face and neck of these animals we find that even the greatest irritations upon them do not produce a fit. Besides, if we dissect a large piece of the skin of the face, so as to let it be in connection with the nervous centres only by the superorbital nerve, we find that the irritation of this piece of skin is still able to produce convulsions, while the irritation of the very nerve which connects it with the brain does not produce any. It seems, therefore, that it is in the cutaneous ramifications of certain nerves of the face and neck that resides the faculty of producing convulsions in the animals upon which I have injured the spinal cord. There is, in that case, as I will show hereafter, something resembling what takes place in man in cases where a ligature around a limb is sufficient to prevent a fit of epilepsy."

The following the author believes to be the conclusions deducible from the facts thus far set forth: 1st. That an injury of the spinal cord may give rise to an epileptiform affection. 2d. That there is a relation between certain parts of the spinal cord and certain branches of a portion of the nerves of the face and neck. 3d. That epileptiform convulsions may be the constant effect of slight irritations of certain nerves. 4th. That even when an epileptiform affection has its primary cause in the nervous centres some cutaneous ramifications of nerves not directly connected with the seat of injury in these centres have a power of producing convulsions, when other nerves, even directly connected with them, have not. 5th. That the ramifications of certain nerves may have the power of producing convulsions, while the trunks of these nerves have not this power.

Dr. Brown-Séquard adduces a number of observations from different writers on nervous diseases, which would seem to show that, in the human subject, the peculiar disturbance of the cerebro-spinal axis which constitutes epilepsy may be generated by alterations of different parts of this nervous axis and by many nerves.

In regard to the division of epilepsy into *centric* and *peripheral*, the author endeavours to show that even in cases where the disease appears, most certainly, to be of peripheral origin, it may sometimes be, in reality, of centric

origin.. To determine the fact during the lifetime of the patient is often impossible.

He points out the very great analogy which exists between the aura epileptica in man and the pain originating in the skin and face of the animals operated on. In neither does the trunks of the nerves seem to have the power of producing convulsions, but only their ramifications in the skin or in the muscles. If there is induced an interruption of nervous transmission between the skin and the nervous centres, no paroxysms afterwards occur, or only in greatly diminished frequency. The doctor has collected many cases of epilepsy attended with an evident aura epileptica, in which either a diminution of the fits, or, as was more frequently the case, an entire suspension of them took place after the interruption of nervous transmission between the starting point of the aura and the nervous centres was effected by ligature of a limb or finger, section of one or many nerves, amputation of a limb or other part, elongation of the muscles which are the seat of the aura, or cauterization by various means of the part of the skin from whence the aura originates.

Dr. Brown-Séquard is led to believe, from what occurs in animals after an injury of the spinal cord, and from some cases observed in man, that the existence of a particular spot capable of producing a convulsive paroxysm when irritated is not of rare occurrence in epileptic patients, which spot may or may not be the starting point of an aura.

After presenting a number of facts having a bearing on this particular question, the doctor remarks: "On one side, therefore, we find that an irritation coming from the skin or a mucous membrane may produce fits without being felt; whereas on another side, when there is the feeling of aura epileptica, the variety of the sensations, and their feeblessness, often show that it is not they which cause the fit, so that we must admit that even then it is a peculiar, unfelt irritation which produces the attack. In my animals, as I have tried to prove, it is not the pain caused by pinching the skin of a part of the face and neck which produces the fit, but *a peculiar kind of irritation*. Perhaps the special irritation which generates a fit gives sometimes a sensation quite special also, and which cannot be described. If we take notice of these three sets of facts—1st, that there are cases of epilepsy in which an irritation arising from the skin, or from the neighbouring parts, may cause fits without being felt; 2dly, that by pressure or galvanism we may produce in a part the kind of unfelt irritation which causes fits; 3dly, that such a part being found, epilepsy may be cured by either the application of ligatures, the section of a nerve, or cauterizations, &c., it becomes evident that it is of the greatest importance to try to find out in epileptics who have no aura epileptica, if there is not a part of the skin or muscle from which arises an unfelt irritation causing the fits. To ascertain the state of things in this respect, various means may be employed. If the fits are frequent, and if they come at regular times, it will be found, by placing tight ligatures around the limbs, whether the attacks are due to an irritation coming from these parts or not. Among other means of detecting the existence or absence of a peripheric irritating cause of the fits are the following: pressure upon various parts of the body; the application of localized and powerful galvanic currents; the application of ice and of a wet and warm sponge, &c. If any part is the seat of a pain, even if this pain seems to have no relation with the fits, it will be necessary to ascertain whether pressure, galvanism, &c., applied upon this part, produces an attack. If it is in a limb that a pain exists, a ligature will decide the relation of the painful spot with the fits. In cases where there is a cramp in some of the muscles, or in one only, at the beginning of the fit, the inducement of a cramp by galvanism might decide if the attack is due to the irritation of the sensitive nerve of the contracted muscle, or if the cramp is nothing but a manifestation of the attack. If the initial cramp exists in a limb, an elongation of the contracted muscle, or a ligature, might lead to the solution of the question."

The danger of producing a fit by these means should not, according to the author, deter us from their use; the fit itself, especially when we are prepared for it, being a small evil in comparison with the great good that may be derived from such a trial.

After adducing a series of arguments to sustain his position as to the influence of an aura epileptica, or of a peculiar kind of irritation of the peripheral nerves, as a cause of epileptic fits, Dr. B. S. enters into a brief examination of the various doctrines concerning the seat and production of epilepsy heretofore advanced; and, having pointed out what he considers their deficiencies, he proceeds to present his own views in elucidation of some of the principal questions involved in the pathology of epilepsy.

Having by experiments, in which the brain proper was removed, and others, where the cerebellum and even the whole basis of the encephalon excepting the medulla oblongata and pons Varolii were also removed, shown that epileptic convulsions are produced independently of the brain, he concludes that epilepsy must have its seat in either the pons Varolii, the medulla oblongata, or the spinal cord, or in these three parts together. He considers it to be very probable that its seat is in the upper part of the spinal cord—in the medulla oblongata and the pons Varolii—where the roots of the trigeminal and of the first spinal nerves have their origin.

Considering the parts of the body where convulsions first occur, according to Dr. B. S., we arrive at the conclusion that the seat of epilepsy is very various. Usually, the first spasmadic contractions occur in the muscles of the larynx, of the neck, of the eyes, of the chest, of the face, and in the bloodvessels of the brain proper, showing that the disease is ordinarily seated in the encephalon or upper parts of the spinal cord, or in both. But that its seat may be also in other portions of the spinal cord would seem to be proved by the occurrence of the first spasmadic contractions in one of the limbs, either the inferior or superior.

"After the first spasms all the muscles of the body may be attacked with convulsions; so that, if we take notice of the loss of the actions of the brain proper, there is ground for thinking that the seat of the disease is both in those parts of the cerebro-spinal axis where reside the faculties of perception and volition, and in those endowed with the reflex faculty; but this view, Dr. B. S. remarks, is correct only in appearance. We have shown, he says, that the loss of perception and volition does not prove that epilepsy has its seat in the brain proper; we will try, in a moment, to show the great probability that a contraction of the bloodvessels of the brain proper, due to an irritation of their nerves in the spinal cord and medulla oblongata, causes the loss of the cerebral faculties; and, as regards the increase of the reflex faculty, we will show that a partial and a local increase is sufficient for the production of fits."

Dr. B. S. believes that epilepsy is always the result of an excitation of the cerebro-spinal axis. This excitation he supposes may, in some cases, arise from chemical and physical changes occurring in the elements of the nervous centres in consequence of bad nutrition or other causes.

"As physiology teaches that an irritation of the simple direct motor side of the cerebro-spinal axis cannot cause general convulsions, we are entitled to consider as reflex the convulsive movements which result from direct excitations of the nervous centres, as well as those which result from irritations coming from peripheric nerve-fibres. The so-called *centric* and *eccentric* causes of excitation of epileptic fits, both act on or through the sensitive or excito-motor side of the cerebro-spinal centres, and consequently both act on the reflex faculty of these centres, so that they ought both to be called reflex excitations."

Dr. B. S. believes epilepsy to depend, in a great measure, on an increased reflex excitability of certain parts of the cerebro-spinal axis. He discards the term reflex faculty or property. In all muscular and nervous tissue, he remarks, we have two distinct properties: that of producing actions—the force of which may vary extremely—and a property of receiving excitations, which we call excitability. One of these may be very strong, while the other is very weak. In like manner, as many experiments have convinced him, the reflex faculty of the cerebro-spinal axis is composed of two elementary vital properties, one of which he names *reflex excitability*, and the other the *reflex force*. The one of these vital properties may be in excess with diminution of the other. In most, if not all epileptics, according to Dr. B. S., the reflex excitability is increased, while the reflex force is rarely above, and is often below its normal standard.

Even though the reflex excitability may not be much increased, it may be, however, sufficient for the production of the fit when certain excitations are present.

In regard to the production of epilepsy by a poison in the blood, Dr. B. S. admits that such may be the case when the functions of the kidneys, liver, skin, or other depurative organs are suspended, and, in consequence, certain deleterious matters are allowed to accumulate in the blood, and also in cases where poisonous substances are admitted from without, as lead, strychnine, cyanhydrie acid, etc. According to Dr. B. S., nearly all of these latter poisons act only as causes of convulsions by increasing the reflex faculty of the cerebro-spinal centre—they give to the nervous centres the faculty of causing convulsions *when they are irritated*, but *they do not irritate*. He knows of no poison which causes convulsions by a direct irritation of any part of the nervous system, excepting carbonic acid when it is allowed to accumulate from any cause in the blood. While it seems to destroy the reflex power of the cerebro-spinal centre the decarbonized blood, at the same time, *irritates* violently this centre, and, therefore, causes directly powerful convulsions.

While he admits that in epilepsy there is very generally, perhaps always, an increased reflex excitability, with or without an increased reflex force, he recognizes, also, that there is, in a great many cases of epilepsy, a special kind of excitation acting on the nervous centres.

"There are, therefore, three distinct elements for the production of a fit: 1st. Increase of the *force* of the reflex property; 2d. Increase of the *excitability* of this property; and 3d. An excitation of a special nature, or a very violent one. Of these three elements, the last two are the most frequent, and perhaps, as we have said, the first of these two is essential.

"As regards the share of a special excitation in the causation of epilepsy, Dr. B. S. remarks, the cases we have related of the cure of this disease by the section of a nerve, by ligatures, &c., show how considerable it may be. But in my animals we have, in this respect, a better illustration. When the nerves going to the parts of the face and neck, by the irritation of which we are able to cause fits, are laid bare, we find that their irritation does not produce convulsions. If, in these animals, the fits depended only upon an increased reflex excitability of the parts of the nervous centres whence the nerves originate, we should see convulsions follow when we irritate the trunks of these nerves. As there are none, we must admit that when an irritation (and a slight one is often sufficient) to the cutaneous ramifications of these nerves in the skin causes a fit, there is something special in the nature of the excitation springing from these cutaneous nerves. However, there is in my epileptic animals an increased degree of reflex excitability in the cerebro-spinal axis, as we find, even after the section of the nerves of the face and neck, that they have convulsions sooner, and lasting longer, than in a healthy animal, when we prevent them from breathing for two or three minutes."

Dr. B. S. admits it as *possible* that, without any increase of excitability, certain irritations of some portions of the encephalon may produce fits of epilepsy. The least puncture with a needle or pin of the *processus cerebelli ad pontem*, and, as he has found, of the auditory nerve, and of certain parts of the medulla oblongata, in mammals, is sufficient to produce fits of a peculiar kind of epilepsy, in which the animal rotates around the longitudinal axis of his body in consequence of the convulsions. In man, this kind of epilepsy has been frequently observed, excepting that the fits in place of lasting, as in animals during life, are of short duration, and it may be that in him it has been produced, even when there was no increased reflex excitability, as it is in animals.

In respect to the paleness of the face, the spasm of the larynx, and the loss of consciousness, which, either one or all of them, usually present themselves in the commencement of the epileptic paroxysm, Dr. B. S. remarks:—

"When the excitation takes place in the spinal cord and the basis of the encephalon, which gives rise to the fit, the nerve-fibres which go to the head are irritated and produce a contraction of its bloodvessels. Of course this contraction expels the blood, and, in consequence, the face becomes pale. Very often another effect depending on the nerve-fibres of the cervical sympathetic is produced—the dilatation of the pupil. But the reverse sometimes takes

place—a contraction of the pupil occurring instead of a dilatation. This last phenomenon is easily explained by admitting that the excitation in the nervous centres takes place near the origin of the third and fifth pair of nerves, and not of that of the cervical sympathetic, as is the case when the pupil dilates. The paleness of the face, and the dilatation of the pupil, when it exists, soon disappear, chiefly in consequence of the obstacle to the venous circulation in the head, and of the state of asphyxia. The cause of the obstacle to the return of blood from the head is not only the contraction of the muscles of the neck, as Dr. Marshall Hall seems to think, but also the state of the chest.

"Among one of the first symptoms of the fit, and as a cause of the cry, there is a spasm of the laryngeal muscles, and a contraction of the expiratory muscles. This contracted state of the chest acts on the heart so as to diminish the force of its beatings, as is the case in the experiment of compressing the chest, made by E. Weber and others, and it acts on the veins in preventing the circulation in them. Although compressed, and unable to beat freely, the heart quickly recovers an apparently great strength; the blood, losing its oxygen and becoming black, acts as a powerful irritant upon the central organ of circulation, so that palpitations, sometimes very violent, occur. Nevertheless, the pulse often remains weak, because the quantity of blood sent to the arteries by the heart is smaller than usual, partly on account of the obstacle to the venous circulation.

"We think that at nearly the same time, when the origin of the branches of the sympathetic nerve going to the bloodvessels of the face receive an irritation in the beginning of a fit of epilepsy, the origin of the branches of the same and other nerves going to the bloodvessels of the brain proper, also receive an irritation. A contraction then occurs in these bloodvessels, and particularly in the small arteries. This contraction expelling the blood, the brain proper loses at once its functions just as it does in a complete syncope. Now, as it has been well proved by the researches of Kellie, Abercrombie, John Reid, Henle, and Foltz, that the quantity of liquid in the crano-spinal cavity cannot change suddenly, it results that if there is less blood in the brain proper there must be more in the basis of the encephalon and in the spinal cord. In consequence of the impediment to respiration, the blood sent to the encephalon, as well as to other parts of the body, contains but little oxygen, and is charged with carbonic acid, so that the large quantity of blood accumulated in the basis of the encephalon—the medulla oblongata, the pons Varolii, the tubercula quadrigeminina, &c.—and in the spinal cord, is endowed in a high degree with the power which I have shown that such blood possesses, *i. e.* to excite convulsions. It may be, as Henle has supposed, that the basis of the encephalon is also excited to cause convulsions in consequence of the pressure exerted upon it by the accumulation of blood. The spinal cord, also, in all its length, is then excited to produce convulsions by the blood which circulates in it."

The foregoing views are defended and enforced by Dr. B. S. in a long series of facts and arguments.

In respect to the production of the change in the cerebro-spinal axis which chiefly constitutes epilepsy, that is, the augmentation of the reflex excitability, he thinks it may take place in two different ways—by a *direct* abnormal nutrition, as in syphilitic, scrofulous, or rheumatic epilepsy; or by an *indirect* abnormal nutrition due to some excitation from a peripheric or a central part of the nervous system. The *modus operandi* of such excitations, Dr. B. S. does not profess positively to know; he thinks it likely, that, in a number of cases, at least, it is through the bloodvessels of the cerebro-spinal axis that these excitations operate to change the nutrition of this nervous axis.

As to the change in certain parts of the skin, mucous membrane, &c., which renders these parts capable of exciting epileptic seizures, he considers it to consist more in alterations in the nature of the excitations that may spring from peripheric nerves than from an increase in the felt excitations coming from these nerves.

"We have shown already that in our animals the skin is not more sensitive in the parts of the face which are capable of exciting fits than in the other parts of the face which have not that power. In man, as we have also shown else-

where, it is to the nature of the excitation and not to the degree of the pain, springing from some peripheric nerve, that we must attribute the production of the fits. The fact that excitations, starting from the periphery and causing fits, may not be felt; and the fact that when there are sensations accompanying these unfelt excitations, they may vary as to their kind, and sometimes be very feeble, certainly are important arguments to show that the real exciting cause of the fit is something which is not felt."

The mode of production of the most interesting phenomena of a complete fit of epilepsy, the entercainment and sequence of the several pathological disturbances to which the phenomena of epilepsy owe their origin, are shown by the following table:—

"CAUSES.

1. Excitation of certain parts of the excito-motory side of the nervous system.
2. Contraction of the bloodvessels of the face.
3. Contraction of the bloodvessels of the brain proper.
4. Extension of the excitation of the excito-motory side of the nervous system.
5. Tonic contraction of the laryngeal and of the expiratory muscles.
6. Farther extension of the excitation of the excito-motory side of the nervous system.
7. Loss of consciousness, and tonic contractions of the trunk and limbs.
8. Laryngismus, trachelismus, and the fixed state of expiration of the chest.
9. Insufficient oxygenation of the blood, and many causes of rapid consumption of the little oxygen absorbed and detention of venous blood in the nervous centres.
10. Asphyxia and, perhaps, a mechanical excitation of the base of the encephalon.
11. Exhaustion of nervous power generally, and of reflex excitability particularly, except for respiration. Return of regular inspirations and expirations."

"EFFECTS.

1. Contraction of bloodvessels of the brain proper, and of the face, and tonic spasm of some muscles of the eyes and face.
2. Paleness of the face.
3. Loss of consciousness, and accumulation of blood in the base of the encephalon and in the spinal cord.
4. Tonic contraction of the laryngeal, the cervical, and the expiratory muscles—laryngismus and trachelismus.
5. Cry.
6. Tonic contractions extending to most of the muscles of the trunk and limbs.
7. Fall.
8. Insufficient oxygenation of the blood and general obstacle to the entrance of venous blood in the chest, and special obstacle to its return from the head and spinal canal.
9. Asphyxia.
10. *Clonic convulsions everywhere*; contractions of the bowels, of the bladder; of the uterus; erection; ejaculation; increase of many secretions; efforts at inspiration.
11. Cessation of the fit; coma or fatigue; headache; sleep."

In respect to the *effects* of epilepsy, Dr. B. S. remarks that these depend on three circumstances: 1st, the absence or great diminution of circulation in the brain proper in the beginning of a fit of epilepsy; 2d, the circulation of black blood through the nervous centres; and 3d, the pressure upon many parts of the base of the encephalon and of the spinal cord by the accumulation of blood in their vessels. From these causes result various disorders of the mind, of the senses, and of the vital properties of the nervous centres. For an analysis of the more important of these he refers to Dr. Russell Reynold's work on *Diseases of the Brain*.

Under the head of treatment, Dr. B. S. lays down eleven general propositions—

1. The first thing to be done in a case of epilepsy is to find out if its origin is peripheric.

2. If it be ascertained that epilepsy is of peripheric origin, proper means are to be employed to separate the nervous centres from this origin, or to remove the cause of the excitation entirely. The application of ligatures should be tried first. Sometimes it happens, as in a very curious case recorded by Recamier, that the aura will disappear from one place and reappear in another; it will be well to pursue it thither, and apply ligatures in the new place.

3. If the ligatures fail, the nerve animating either the part of the skin from which originates the aura, or the muscle or muscles which are the first convulsed, must be laid bare, and sulphuric ether thrown upon it. This might, perhaps, be sufficient to cure the affection; if it is not, then the nerve must be divided.

4. Amputation of a limb condemned as barbarous and unnecessary.

5. Blisters, setons, caustics, etc., in the neighbourhood of a part from which an aura originates, are sometimes sufficient, but are less certain than the application of a red hot iron.

6. The best means of treating epilepsy seems to be the application of a series of moxas along the spine, and particularly to the nape of the neck.

7. The nutrition of the nervous centres may be so modified as to effect the cure of epilepsy, principally by medicines which act on the bloodvessels, as strychnia, but especially by those which cause contractions of these vessels, as atropia, ergot of rye, etc.

8. Even when it would seem from the circumstances of the case to be indicated, trephining should not be resorted to until cauterization and other means of producing a modification of the conditions of the skin of the head have failed.

9. Cauterization of the mucous membrane of the larynx is an excellent means, not only of diminishing or preventing the spasm of the larynx, but as a means of producing a modification in the nutrition of the medulla oblongata.

10. As a means of treatment too much neglect, the possibility of the transformation of epilepsy into intermittent fever, has been proved by facts observed by Drs. Selade, Dumas, &c. Between the two diseases there is supposed to be strong analogies. It is suggested, therefore, as of the utmost importance to endeavour to generate fever and ague in epileptics as a means of cure.

11. Hygienic means are as important as the medical treatment, and sleeplessness ought to be as much combated as the disease itself.

As regards the treatment of the fits, the prevention or diminution of asphyxia cannot be too much insisted on, as it seems certain that the circulation of black blood in the nervous centres prepares for the production of future fits. For this object the best means are—1st, dashing very cold water on the face; 2d, the inhalation of chloroform.

We have endeavoured to present a very full outline of the views advanced by Dr. Brown-Séquard in explanation of the etiology, nature, and treatment of epilepsy. The facts and arguments upon which these views are based are deserving of a careful study on the part of every practitioner. The entire treatise is replete with physiological and pathological propositions of deep interest and importance which strongly press it upon the notice of the profession.

D. F. C.

ART. XXIII.—*A Report on Diseases of the Cervix Uteri; read before the Medical Society of the State of Georgia, at the Annual Meeting in Augusta, April, 1857.*
By JOSEPH A. EVE, M. D., Professor of Obstetrics and Diseases of Women and Children, in the Medical College of Georgia. 8vo. pp. 42. Augusta, 1857.

WHEN we take into consideration the degree of attention which, of late years, has been directed to the investigation of the morbid conditions of the uterus, and the amount of talent and experience that have been brought to the task, it was but reasonable to anticipate that a much greater degree of unanimity would exist among physicians in reference to the nature of uterine dis-